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CARBAMATE BAITS DISCOURAGE BLACKBIRDS FROM USING FEEDLOTS

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ABSTRACT: Red-winged blackbirds (*Agelaius phoeniceus*) have been discouraged from using cattle feedlots near Denver, Colorado, by baiting alleys with cracked corn treated with an aversion-producing immobilizing agent, DRC-736 [4-(methylthio)-3,5-xylyl N-methylcarbamate]. In three studies, large populations of redwings were reduced 70% - 98% within a few days and protection lasted about a month. In a fourth study, simultaneous baiting of three heavily used feedlots reduced redwing use by more than 90% within hours and was apparently responsible for these birds abandoning their roost and relocating in areas where they caused little trouble. Mortality was low (less than 5% of affected redwings in the fourth study), and few birds of nontarget species were affected.

INTRODUCTION

Damage, nuisance problems, and hazards caused by beneficial or protected species of birds continue to trouble our society. Certain agents that have a minimum hazard to wildlife have shown promise for alleviating these problems. Especially useful are chemicals that cause birds to avoid an area after application (Goodhue and Baumgartner, 1965a, 1965b; Woronecki, Guarino, and De Grazio, 1967). One of these, an experimental compound, DRC-736 [4-(methylthio)-3,5-xylyl N-methylcarbamate], has been very effective for protecting sprouting corn from pheasants (*Phasianus colchicus*) (West, Brunton, and Cunningham, 1969) and boat-tailed grackles (*Cassidix mexicanus*) (West and Dunks, 1969); and we have found it an excellent means of protecting livestock feedlots from problem blackbirds by causing aversion (Woronecki et al., 1967).

DRC-736 causes temporary paralysis in birds through reversible cholinesterase inhibition. When blackbirds are given oral doses near the TI_{50} (TI = temporary immobilization), paralysis occurs in about 20 minutes and lasts about an hour. For red-winged blackbirds (*Agelaius phoeniceus*), the TI_{50} is 1.0 mg/kg and LD_{50} is 8.4 mg/kg, giving about an 8-fold safety margin. The compound has no known secondary hazards (Schafer et al., 1967).

Three earlier field trials to discourage wintering redwings from using individual feedlots near Denver, Colorado, were briefly reported by Woronecki et al., (1967). This paper describes the results of a fourth study with DRC-736 in which all major feedlots within the daily feeding range of a roost of blackbirds were baited simultaneously.

BAITING TESTS

In the three earlier studies (1962-1965), DRC-736 was applied at 1%-2% to screened, cracked corn, which was diluted 1:10 with untreated cracked corn and scattered by hand or hand-operated spreaders in feedlot alleys at about 1/2 lb treated bait per acre. Results were generally very good. Redwing populations (as many as 17,000 birds before treatment) dropped 70%-98% within a few days. They then gradually rose again, reaching pretreatment levels in about a month, when baiting was required again. Mortality among affected redwings was estimated at 10%-20% by collecting paralyzed birds; this figure is probably an overestimate, however, because of the stress produced by handling. About 50 birds of seven other species were known to have been affected or killed in these tests.

Although the results of these studies were generally quite satisfactory, they led us to believe that if all feedlots within the daily feeding range of birds in one roost were treated simultaneously, enough aversion could be created to disperse the entire roost. Therefore, a fourth study was conducted in 1966-67 in a sector of the South Platte River Valley surrounding the only known major winter roost in the area, Mile High Marsh. Three feedlots had the most troublesome blackbird problems; these were the Natco and Mancini Feedlots, 5 and 6 miles northwest of the marsh, and the DMH Feedlot, 9 miles southwest. Each lot had had high redwing populations in past winters, and band returns revealed an interchange of birds among these lots.

The three lots were baited simultaneously at dawn on December 29, 1966, after the first major freeze and snowfall had made normal foods less available and most of the redwings were

using feedlots. Screened cracked corn, averaging 20 mg per particle, was treated to contain 1.25% by weight of DRC-736, or 4.2 mg/kg for a 60-g redwing ingesting an average particle. A small amount of latex was added to the treating solution to prevent flaking. In an attempt to reduce mortality from overdoses of the chemical, treated bait was diluted with untreated cracked corn at a ratio of 1:50 instead of the 1:10 ratio used in earlier tests, and calibrated electric seeders mounted on pick-up trucks were used to distribute the bait for more uniform coverage. The application rate was 1.3 lb of treated corn per acre of alley. The three lots had 3.4 miles of alley covering 6.2 acres.

There was an immediate reduction in the number of birds at all three lots as the flocks responded to affected birds throughout the area. Of the 65,000 birds that had arrived earlier at the three lots, less than 3,000 remained by 10:30 a.m. The following morning, only 5% of an original 20,200 birds returned to DMH. About 22% of 31,500 birds returned to Natco's the morning after baiting, but the Natco population was reduced to almost nothing by the next day. About 35% of 14,000 birds returned to Mancini's within the next week, probably because fewer birds were affected at this lot. Mancini's was re-baited on January 4, and again there was an immediate exodus of birds. After this time, the number of redwings at the three lots remained below 5% of the pretreatment levels throughout the rest of the winter, even though freezing temperatures and 2- to 3-inch snowfalls occurred in late January. Large flocks of birds did not move to other feedlots in the study area.

On December 29, the first day of baiting, about 60,000 birds were using the roost at Mile High Marsh. Their numbers dropped to 40,000 on January 3 and to 10,000 on January 5, a week after the initial baiting of the three lots. Many of the birds relocated at two other marshes: Banner Lakes, 9 miles northeast, and Lafayette, 22 miles west, each of which is about 8 miles farther from the treated feedlots than the original roost.

Of 67 immobilized redwings collected from the treated lots and held in cages to determine mortality, only three (4.5%) died. Hazards to species other than redwings in this trial were minimal. The only other birds known to have been affected were five house sparrows (Passer domesticus) and a starling (Sturnus vulgaris).

SUMMARY AND CONCLUSIONS

Cracked-corn baits treated with DRC-736 have proved very successful in discouraging red-winged blackbirds from using feedlots. In all tests conducted, populations have been reduced 70%-98% within a few days. In an earlier test, four baitings were required to keep a single feedlot comparatively free of redwings throughout an entire winter season. In our latest test, when all major feeding sites (feedlots) within the range of a roost were simultaneously baited, the birds not only stopped using the feedlots but relocated at other roosts farther away and caused little trouble in the new areas. Mortality of redwings affected by the bait was reduced from 10%-20% in earlier studies to 4.5% by increasing the dilution ratio of treated to untreated bait from 1:10 to 1:50 and by using calibrated electric seeders for more uniform bait distribution.

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